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November 5, 2001

**RECEIVED**

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

WRITTEN EX PARTE-Filed Electronically

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
The Portals  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Re: CC Docket No. 01-277

Dear Ms. Salas:

I am providing you with hard copies of two documents that I sent electronically to Jessica Rosenworcel of the Commission's Common Carrier on November 5, 2001. These documents were sent to Ms. Rosenworcel at her request. I am also sending copies of these documents to James Davis-Smith and Cynthia Lewis of the Department of Justice's Telecommunications Task Force.

In accordance with Section 1.1206, I am filing two copies of this notice and the accompanying attachments and requesting that you please place them in the record of the proceeding identified above.

Sincerely,

*Kathleen B. Levitz*

Kathleen B. Levitz

Attachments

cc: Jessica Rosenworcel  
Susan Pié  
James Davis-Smith  
Cynthia Lewis

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# BellSouth Trunk Group Performance Measurement and Remedy Calculation

DOJ & FCC Meeting  
July 11, 2001

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# Topics

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- Review of Current Methodologies
- Georgia May Data Analysis
- SQM Trunk Blocking Calculations
  - TIER I
  - TIER II
- VSEEM Remedy Calculations
  - TIER I
  - TIER II
- Conclusion

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# Trunk Blocking

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- Objective of the measurement
  - Determine the level of blocked calls experienced by end users of the local network attempting to reach end users served by a CLEC switch.
  - Compare the blocking level experienced by these end users to the blocking experienced by end users of the local network attempting to reach end users served by a BST switch.

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# Network Topology Review

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- BellSouth has performed an analysis of the traffic bearing trunk groups to assess which trunk groups exhibit blocking and which of these should be used to demonstrate comparative performance in the network.
- The following slides describe the range of functional trunk groups which bear customer traffic. These slides provide a clear basis for categorizing and selecting trunk groups to be used in analyzing performance.

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# Network Route Analysis

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In order to ensure that all possible trunks in the network were considered for inclusion and exclusion in the trunk blocking comparison process, BellSouth has analyzed all trunks, their roles in the network according to use and their interconnection arrangements.

The following pages contain a full listing of trunk route arrangements for routes terminating at CLEC and at BellSouth end-offices. This information is used in conjunction with the trunk group categories to determine each trunk groups' relevance for comparing CLEC versus BellSouth blocking performance. (The trunk group categories chosen for comparison are listed at the end of this section)

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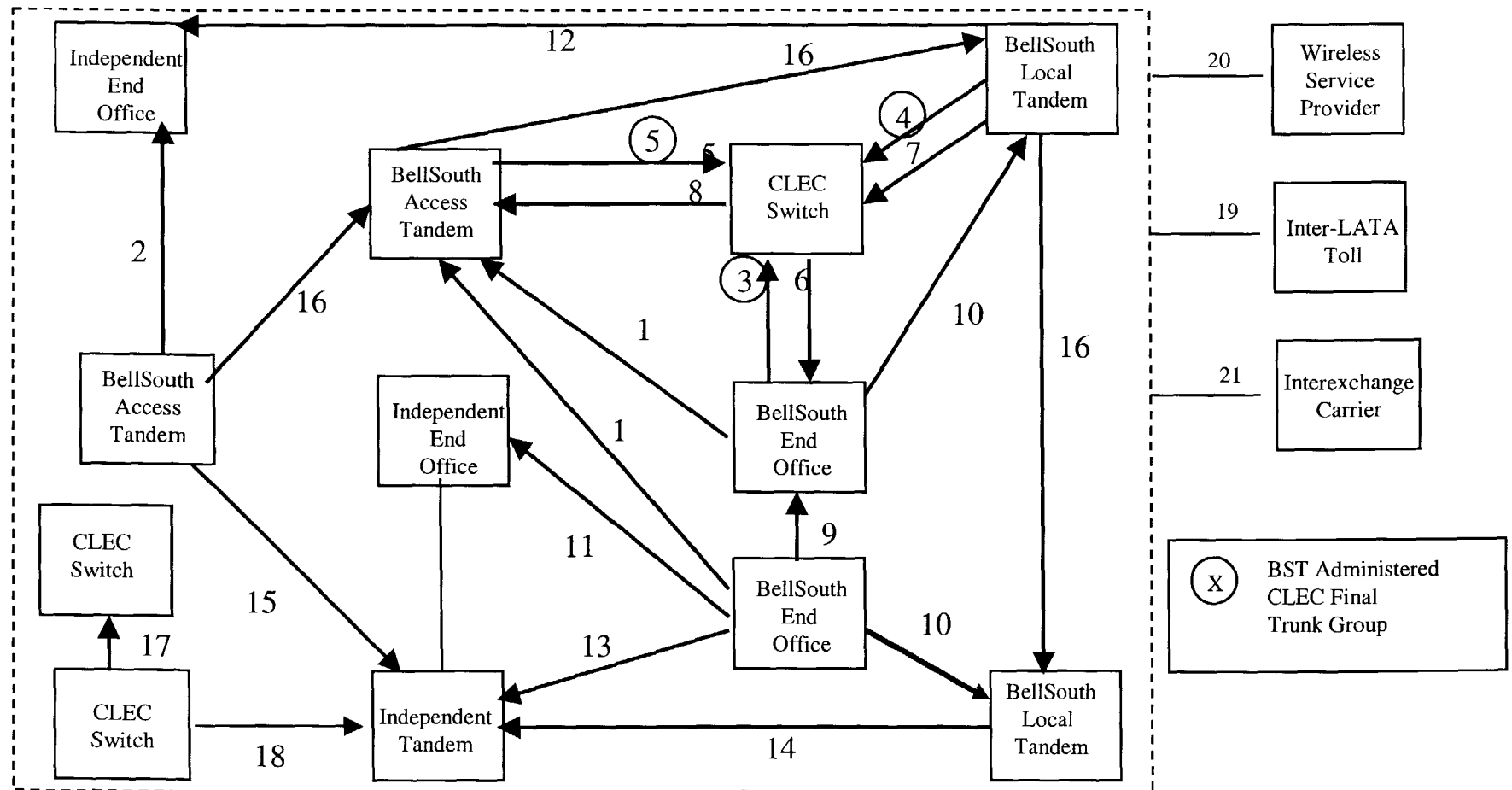
# Trunk Group Categories

## (As Shown in Network Topology Diagram)

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Category	Administrator	Point A	Point B
1	BellSouth	BellSouth End Office	BellSouth Access Tandem
2	BellSouth	BellSouth Access Tandem	Independent End Office
3	BellSouth	BellSouth End Office	CLEC Switch
4	BellSouth	BellSouth Local Tandem	CLEC Switch
5	BellSouth	BellSouth Access Tandem	CLEC Switch
6	CLEC	BellSouth End Office	CLEC Switch
7	CLEC	BellSouth Local Tandem	CLEC Switch
8	CLEC	BellSouth Access Tandem	CLEC Switch
9	BellSouth	BellSouth End Office	BellSouth End Office
10	BellSouth	BellSouth End Office	BellSouth Local Tandem
11	BellSouth	BellSouth End Office	Independent End Office
12	BellSouth	BellSouth Local Tandem	Independent End Office
13	BellSouth	BellSouth End Office	Independent Tandem
14	BellSouth	BellSouth Local Tandem	Independent Tandem
15	BellSouth	BellSouth Access Tandem	Independent Tandem
16	BellSouth	BellSouth Tandem	BellSouth Tandem
17	CLEC	CLEC Switch	CLEC Switch
18	CLEC	Independent End Office	CLEC Switch
19	BellSouth	BellSouth Tandem	Inter-LATA Tandem
20	BellSouth	BellSouth Tandem	Wireless Service Provider
21	BellSouth	BST Tandem	IXC Tandem

# Network Topology





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# Network Configurations

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- For delivery of calls from BellSouth to a CLEC, CLECs are interconnected to BellSouth's network through combinations of three paths
  - BST end office -> CLEC end office (Type 3)
  - BST end office -> (Type 1) -> BST Access Tandem -> (Type 5) -> CLEC end office
  - BST end office -> (Type 10) -> BST Local Tandem -> (Type 4) -> CLEC end office

(Note: BST Intertandem trunks may also be involved in areas with multiple access or local tandems)(Type 16) (See diagram on following page)

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## Trunk Group Categories Selected for Comparison

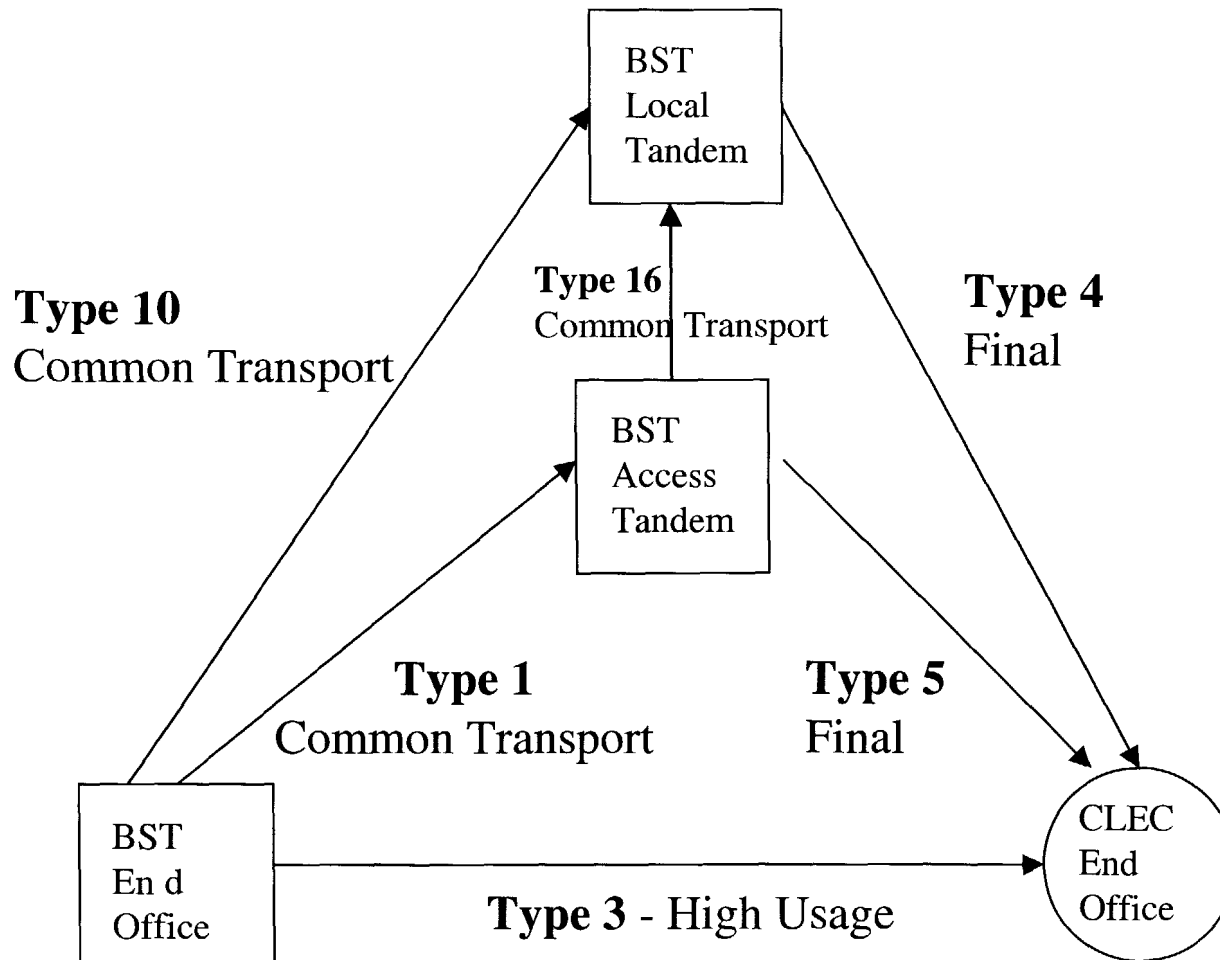
- Category 1 (BellSouth End-Office to BellSouth Access Tandem)
- Category 3 (BellSouth End-Office to CLEC Switch)
- Category 4 (BellSouth Local Tandem to CLEC Switch)
- Category 5 (BellSouth Access Tandem to CLEC Switch)
- Category 9 (BellSouth End-Office to BellSouth End-Office)
- Category 10 (BellSouth end Office to BellSouth Local Tandem)
- Category 16 (Inter-Tandem Trunk Groups carry all traffic equally)

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# Network Configurations

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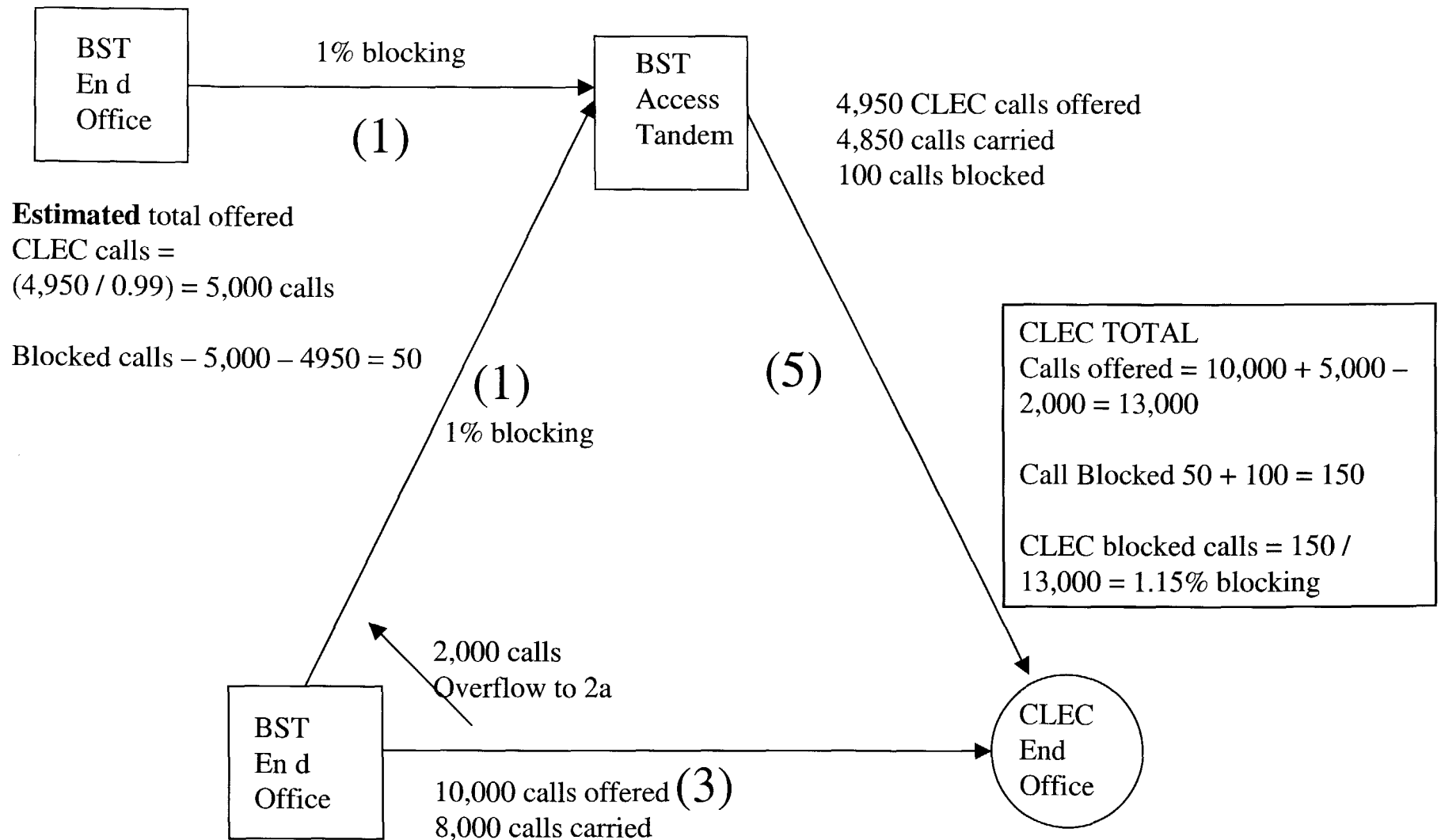
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# Blocking

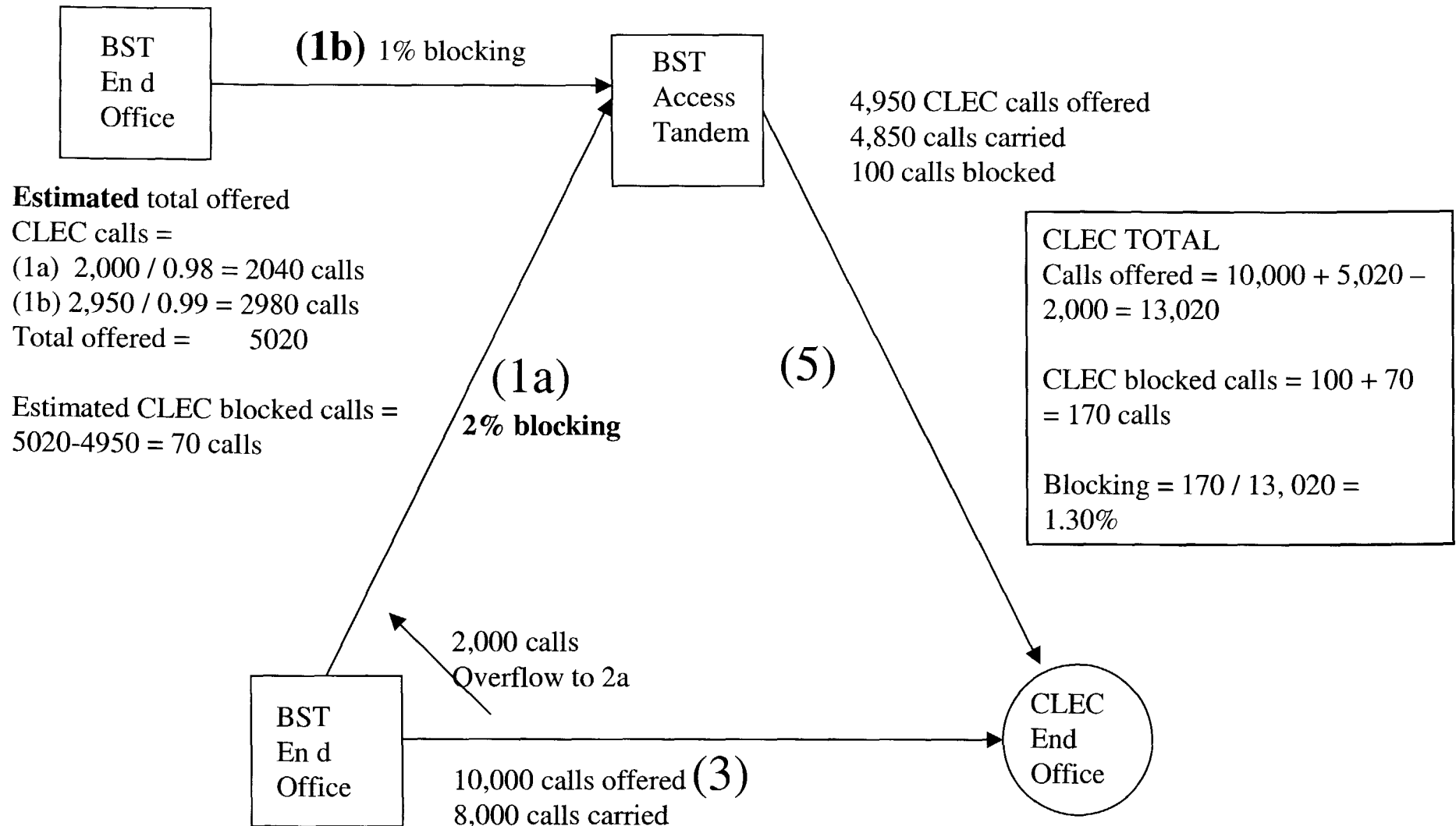
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- Blocking on calls destined for the CLECs switch can be measured exactly at only two points in the network, the High Usage (3) and Final trunk groups(4 and 5) routing directly from a BST switch to a CLEC switch. Two items of data are available, the number of offered calls and the number of overflow or blocked calls.
- Normally, the High Usage groups are designed to overflow to common trunk groups routed through the tandems, so no direct blocking is experienced at these points
- The CLEC –destined traffic and BST access and local traffic are commingled on the other trunk groups, and blocking of the CLEC calls must be estimated, based on the overall performance of those trunk groups.

# Example 1



# Example 2



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# Truck blocking calculation

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(Blocked calls on final group + estimated blocked CLEC calls on common groups)

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**(Offered calls on HU groups + estimated offered CLEC calls on common groups  
- overflow calls on HU groups)**

NOTE: If the effect of the blocking on the common groups is not included, the actual blocking experienced by customers placing calls to CLEC end users is understated)

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## Category Groupings Used for Blocking Comparison

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Current:	CLEC	BellSouth
	1, 3, 4, 5, 10, 16	9

Current grouping includes the common transport trunk groups in the CLEC measurement but not in BST measurement. The High Use overflows in Bucket 9 (BST) are usually routed to Bucket 10 (common transport) where some blocking occurs. Hence, BST blocking is deliberately understated.

This was originally established as the methodology since the regulators believed the CLECs would begin their networks by connecting at the access tandems, and that proportionally more of the CLECs traffic would be routed over the common transport groups than BST's traffic. This methodology disadvantages BST until some future date when the network configurations are nearly identical.



# Bucket Data Analysis – May 2001

## May Call Volume Data By Bucket in Georgia

Bucket	Peg Count	FN Overflow	Blocking	Percent Total Calls
1	453,600,320	901,325	0.1987%	
10	87,866,189	1,768,449	2.0127%	
16	58,292,883	443,478	0.7608%	
<b>Common Transport Total</b>	<b>599,759,392</b>	<b>3,113,252</b>	<b>0.5191%</b>	<b>47%</b>
4	-	-		
3	82,316,649	-	0.0000%	
5	31,281,199	130,621	0.4176%	
<b>CLEC Dedicated Total</b>	<b>113,597,848</b>	<b>130,621</b>	<b>0.1150%</b>	<b>9%</b>
9	567,221,968	1,903,951	0.3357%	
<b>BellSouth Total</b>	<b>567,221,968</b>	<b>1,903,951</b>	<b>0.3357%</b>	<b>44%</b>

\* No trunk group in Bucket 4 in GA

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# Georgia May Actuals

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## Aggregate Results

.3364% for BST

.1874% for CLECs

## Hourly Results (% blocked)

Hour	BellSouth	CLEC	Difference
1	0.004685	0.001944	0.002740
2	0.001350	0.000279	0.001071
3	0.000101	0.000000	0.000101
4	0.002693	0.017150	-0.014457
5	0.000422	0.000041	0.000380
6	0.001718	0.000020	0.001698
7	0.061644	0.001411	0.060233
8	0.796859	0.022991	0.773868
9	0.721648	0.060148	0.661499
10	0.654018	0.092038	0.561981
11	0.163004	0.206124	-0.043120
12	0.280400	0.238364	0.042036
13	0.457279	0.120734	0.336545
14	0.378082	0.069927	0.308155
15	0.301206	0.147384	0.153823
16	0.300706	0.280480	0.020226
17	1.147295	0.348542	0.798753
18	0.157386	0.162596	-0.005210
19	0.049476	0.120428	-0.070952
20	0.111144	0.131423	-0.020279
21	0.133640	0.268450	-0.134811
22	0.052697	0.661739	-0.609042 X
23	0.017468	0.283135	-0.265667

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# Monthly Blocking Calculations

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- Overall Monthly Blocking is the sum of all blocked calls divided by the sum of all attempted calls for the month.
- Monthly Blocking by Hour is the same calculation performed within each hourly period.
- Aggregate Blocking is based on the monthly blocked and attempted calls aggregated across trunk groups up to individual CLEC or CLEC/BST aggregate level. This can be calculated by hour or overall.
- Blocked calls are the Final trunk group overflow plus the estimated overflow on the common transport trunk groups.
- Attempted calls are the dedicated trunk group peg counts plus the estimated overflow on the common transport trunk groups minus the High Use overflow on the dedicated trunk groups

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# CLEC Monthly Blocking by Hour Calculation & Example

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- Calculate the combined monthly blocking of the *relevant* common transport groups after removing the HU overflow for each hour (A)
- Apply the common transport monthly blocking to the appropriate final path peg counts to estimate the CLEC call attempts originated from the common paths (C)
- Estimate the CLEC blocked calls on the common transport groups (D)
- Combine the estimated CLEC call attempts with the final path peg counts and subtract out the HU overflows for total call attempts (J)
- Combine the Final trunk group overflow with the estimated CLEC blocked calls from the common paths for total blocked calls (F)
- Divide the total blocked calls by the total attempted calls to calculate the monthly blocking within each hour (K)

## Individual CLEC Blocking Calculation in GA for Hour 20, May 2001

		1	3	5	10	16	9
High Use	Overflow	140,815	569		31,445	40,346	99,431
	Peg Counts	12,487,554	125,173		2,451,380	789,472	17,105,291
Final	Overflow	44,361		374	48,152	14,190	34,177
	Peg Counts	13,048,532		11,057	2,189,520	2,415,372	13,744,267

### Buckets 1 and 16 Blocking

HU Overflow in 1 and 16	181,161	Z
Total Peg Counts in 1 and 16	28,740,930	Y
Adjusted Peg Counts in 1 and 16	28,559,769	$X = Y - Z$
FN Overflows in 1 and 16	58,551	V
Aggregate Monthly Blocking in 1 and 16	0.002050122	$A = V/X$

### CLEC Calls Attempted and Blocked in 1 and 16

Total Peg Counts in Bucket 5	11,057	B
CLEC Calls Attempted in 1 and 16 (estimated)	11,080	$C = B/(1-A)$
CLEC Blocked Calls in 1 and 16 (estimated)	23	$D = C - B$

### CLEC Blocked Calls

CLEC Blocked (FN Overflows) Calls in 3 and 5	374	E
Total CLEC Calls Blocked in 1, 16, 3, and 5	397	$F = D + E$

### CLEC Attempted Calls

CLEC Peg Counts in Bucket 3	125,173	G
CLEC HU Overflows in Bucket 3	569	I
CLEC HU Overflow in Bucket 5	-	H
Total CLEC Calls Attempted	135,684	$J = C + G - I - H$

### TIER I Blocking Calculation

CLEC Blocking	0.2924%	$K = F/J$
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# BellSouth Blocking Calculation for TIER I Comparison

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- Sort the bucket 9 data by hour and LATA and calculate the following within each LATA by hour
- Subtract out the HU overflow from peg counts and sum across all trunk groups in bucket 9 to get total attempted calls
- Sum the FN overflow across all trunk groups in bucket 9 to get total blocked calls
- Identify which LATAs each CLEC is in business
- Compute the LATA matched BST blocking by aggregating the calls blocked and attempted across the LATAs in which each CLEC is operating only
- Divide each CLEC's aggregated calls blocked by the aggregated calls attempted by hour

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# Aggregate Blocking for TIER II Comparison

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- For hourly blocking, apply the exact same calculations on the peg counts and overflows aggregated across all CLEC or BST trunk groups within each hour
- For overall monthly average blocking, carry out the calculations on the blocked and attempted calls aggregated across all 24 hours

## Georgia CLEC Aggregate Blocking Calculation for Hour 20, May 2001

		1	3	5	10	16	9
High Use	Overflow	140,815	52,938	3,319	31,445	40,346	99,431
	Peg Counts	12,487,554	4,116,438	37,403	2,451,380	789,472	17,105,291
Final	Overflow	44,361		4,291	48,152	14,190	34,177
	Peg Counts	13,048,532	43	1,379,854	2,189,520	2,415,372	13,744,267

### Buckets 1 and 16 Blocking

HU Overflow in 1 and 16	181,161	Z
Total Peg Counts in 1 and 16	28,740,930	Y
Adjusted Peg Counts in 1 and 16	28,559,769	$X = Y - Z$
FN Overflows in 1 and 16	58,551	V
Aggregate Monthly Blocking in 1 and 16	0.002050122	$A = V/X$
CLEC Calls Attempted and Blocked in 1 and 16		
Total Peg Counts in Bucket 5	1,417,257	B
CLEC Calls Attempted in 1 and 16 (estimated)	1,420,169	$C = B/(1 - A)$
CLEC Blocked Calls in 1 and 16 (estimated)	2,912	$D = C - B$

### CLEC Blocked Calls

CLEC Blocked (FN Overflows) Calls in 3 and 5	4,291	E
Total CLEC Calls Blocked in 1, 16, 3, and 5	7,203	$F = D + E$
CLEC Attempted Calls		
CLEC Peg Counts in Bucket 3	4,116,481	G
CLEC HU Overflows in Bucket 3	52,938	I
CLEC HU Overflow in Bucket 5	3,319	H
Total CLEC Calls Attempted	5,480,393	$J = C + G - I - H$
TIER II Blocking Calculation		
CLEC Blocking	0.1314%	$K = F/J$



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# TIER I CLEC Comparison

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- For each CLEC, calculate the monthly average blocking rate.
- Calculate the LATA matched BST monthly average blocking rate.
- For each CLEC, compare the blocking rate to BST's.
  - If the BellSouth blocking rate is higher, no remedy payment is due.
  - For each CLEC with higher monthly blocking and at least one failure on the two consecutive hour test, a remedy calculation is made.

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# TIER II

## Aggregate CLEC Comparison

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- For all CLECs combined, calculate the average blocking rate over each month of a three consecutive month period.
- Calculate a comparable BST blocking rate for each month.
- If the BST blocking rate is higher in any of the three months, no remedy is due.
- If the CLEC blocking rate is higher than BST's and the two consecutive hour test fails for each of the three months, a remedy is due.
  - A remedy for each month is calculated and the three amounts are averaged.

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# Remedy Payment Calculation

Individual CLEC or Aggregate CLEC

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- Determine the average CLEC and BST blocking rates over the month for hours 1 – 24.
- Count the number of times the CLEC blocking rate exceeds the BST rate by more than .5% for two consecutive hour periods.
- If the count is zero, no remedy is due.

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# Remedy Payment Calculation

Individual CLEC or Aggregate CLEC

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- If the failure count of two consecutive hours for which the CLEC blocking exceeds BST blocking by more than .5% is 1 or more (max. 23), then proceed as follows.
  - Compute the blocked calls subject to remedy.
  - Compute the average calls processed per trunk.
  - Compute the number of trunks subject to remedy.
  - $\text{Remedy} = (\text{Trunks Subject to Remedy}) \times (\text{Appropriate Per Occurrence Remedy Amount from the Escalated Fee Schedules})$ .

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# Calculation Details

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- Monthly Average Blocking.
  - CLEC: total calls blocked during the month divided by total calls attempted.
  - BST: same as CLEC except only calls within LATAs where the CLEC operates are included.
- Blocked Calls Subject To Remedy.
  - CLEC monthly blocking rate minus BellSouth monthly blocking rate multiplied by the CLEC's total calls attempted for the month.

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# Calculation Details

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- Average Calls Processed Per Trunk.
  - Total non-blocked calls for the month (attempted calls minus blocked calls) divided by the total number of trunks in service.
- Number of Trunks Subject to Remedy.
  - Blocked calls subject to remedy divided by the average calls processed per trunk.
  - Round up this ratio to the next integer.

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# Remedy Calculation Example

## (CLEC 2)

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- CLEC 2: 40,486 blocked and 3,760,280 attempted calls
  - CLEC 2 Monthly blocking = 1.0767%
  - LATA matched BST blocking: .3753%
- Calls subject to remedy =  $(1.0767 - .3753) * 3,760,280$   
 $= 26,373$
- Ave. calls carried per CLEC trunk  
 $= (3,760,280 - 40,486) / 2,975 = 1,250.35$   
where 2,975 is the number of trunks in service for CLEC
- Trunks needed for remedy =  $26,373 / 1250.35 = 21.09$
- Total remedy amount (prior month failed on TIER I)  
 $= \text{Round Up } (21.09) * \$125 = \$2,750$

# TIER I & II Remedy Calculation

## Georgia, May 2001—partial CLEC listing

C	D	E	F	G	H	I	J	K	L	M	N	O	P
CLECID	Trunks In Service (TIS)	Monthly Total Blocked Calls	Monthly Total Attempted Calls	CLEC Ave Monthly Blocking Percentage	BST Ave Monthly Blocking Percentage	Difference in Monthly Blocking (G-H)	Blocked Calls STR (F*I, IF I>0)	Ave Calls Processed Per Trunk ((F-E)/D)	Trunks Needed for Remedy (J/K)	# of Two Consecutive Hour Test Failed	# of Trunks STR (Round Up of L if M>0)	Per Trunk Occurrence Remedy Amount	Remedy Amount (N*O)
1	120	185	77,494	0.2381	0.0056	0.2326	180	644.24	0.28	0	0	\$0	\$0
2	2,975	40,486	3,760,280	1.0767	0.3753	0.7014	26,373	1,250.35	21.09	2	22	\$125	\$2,750
3	1,968	1,387	562,189	0.2468	0.3364	-0.0896	0	284.96	0.00	0	0	\$0	\$0
4	4,392	1,404	2,147,263	0.0654	0.3753	-0.3099	0	488.58	0.00	0	0	\$0	\$0
5	15,888	38,089	18,573,888	0.2051	0.3753	-0.1703	0	1,166.65	0.00	0	0	\$0	\$0
6	48	19	6,729	0.2851	0.3753	-0.0903	0	139.79	0.00	0	0	\$0	\$0
7	1,680	2,104	831,528	0.2530	0.3753	-0.1223	0	493.70	0.00	0	0	\$0	\$0
8	48	151	59,524	0.2531	0.3753	-0.1222	0	1,236.94	0.00	0	0	\$0	\$0
9	816	19,496	4,271,514	0.4564	0.3612	0.0952	4,066	5,210.81	0.78	2	1	\$100	\$100
10	10,512	32,657	5,081,602	0.6426	0.3364	0.3063	15,563	480.30	32.40	2	33	\$175	\$5,775
11	336	32	11,850	0.2710	0.3753	-0.1043	0	35.17	0.00	0	0	\$0	\$0
12	48	1	446	0.2522	0.3753	-0.1231	0	9.27	0.00	0	0	\$0	\$0

C	D	E	F	G	H	I	J	K	L	M	N	O	P
CLECID	Trunks In Service (TIS)	Monthly Total Blocked Calls	Monthly Total Attempted Calls	CLEC Ave Monthly Blocking Percentage	BST Ave Monthly Blocking Percentage	Difference in Monthly Blocking (G-H)	Blocked Calls STR (F*I, IF I>0)	Ave Calls Processed Per Trunk ((F-E)/D)	Trunks Needed for Remedy (J/K)	# of Two Consecutive Hour Test Failed	# of Trunks STR (Round Up of L if M>0)	Per Trunk Occurrence Remedy Amount	Remedy Amount (N*O)
Aggregate	146,098	210,755	112,460,458	0.1874	0.3364	-0.1490	0	768.32	0.00	0	0	\$500	\$0



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# Conclusion

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- The methodology approved by the GA and LA PSCs accounts for blocking of CLEC calls on the common transport groups without masking blocking on the final groups.
- As a future issue, consideration needs to be given to including the the common transport group blocking in the BST calculation.